INEEL Intelligence

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A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory – Home of Science and Engineering Solutions. Work at the lab supports the Department's business lines of environmental quality, energy resources, national security and science.

■ ENERGY RESOURCES – Advisory Panel Takes Closer Look at INEEL

A five-member subcommittee of the Nuclear Energy Research Advisory Committee spent three days in Idaho earlier this month at the request of Bill Magwood, director of the DOE Headquarters Office of Nuclear Energy, Science and Technology (NE). Team members reviewed the applicability of existing INEEL and Argonne National Laboratory-West facilities for use in DOE's future Generation IV, Advanced Fuel Cycle and space nuclear missions. The team's findings will help guide DOE NE in making near- and long-term investment decisions.

■ ENVIRONMENTAL QUALITY – Regional Consortium Tackles Environmental Challenges

Researchers from the INEEL, Washington State University and Concurrent Technologies Corporation have banded together to establish the new Consortium for Extremophile Research. The group is dedicated to the research and development of new commercial products and processes that use the unique capabilities of microorganisms that exist naturally in extreme environments. Among the environmental projects the consortium will tackle are using alkaline-loving bacteria to dispose of industrial wastes, studying methane-forming microbes in the Arctic to develop a better understanding of climate change, and removing radioactive wastes from surfaces. "It's rewarding to team with WSU and CTC since we've conducted successful collaborative projects for many years," said Bill Apel, microbiologist and science fellow at the INEEL. "And, since WSU has had a role in managing the INEEL for the past three years as a member institution in the Inland Northwest Research Alliance -- solving grand challenges together -- using discoveries in nature's biodiversity couldn't be more exhilarating," Apel added.

■ NATIONAL SECURITY – INEEL Explosive Detection Technology Demonstrated

INEEL National Security scientists successfully demonstrated the standoff detection of an explosive surrogate sealed within a car trunk using the portable isotopic neutron spectroscopy system (PINS) and the Pulsed Photoneutron Application (P^2AS) system. Both are neutron activation technologies -- PINS uses a neutron generator and the P^2AS uses a variable electron accelerator. The demonstration of the technologies occurred at the program review of the Department of Defense Physical Security Action Group. The INEEL hosted the October meeting.

■ SCIENCE – Chemical Tracing System Unveiled

By combining global positioning technology with an ion mobility spectrometer, INEEL scientists have come up with a highly effective chemical mapping system. The system is able to keep tabs on the exact location of air-borne pollutants and map out a trail leading right to the pollution's source. Additionally, the program can save the information it gathered for future reference. The INEEL research team initially developed the technology to find abandoned gas wells, but subsequently discovered many alternate uses. For example, chemist David Atkinson says the system could help regulatory agencies in their efforts to crack down on improper waste dumping.

For more information, contact Ron King at 208-526-7300

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